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POST-STORM DATA ACQUISITION

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SUMMARY OF REVISIONS: This directive supercedes Weather Service Operations Manual (WSOM) Chapter J-02, "Significant Hydrometeorological Events, Post-Storm Data Acquisition and Service Assessments" Issuance 98-5, dated September 28, 1998.

signed by December 23, 2002

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Post-Storm Data Acquisition

Table of Contents: Page

1. Overview. The Post-Storm Data Acquisition (PSDA) activity includes the acquisition and assembly of highly perishable data necessary for accurate post-event analysis. It requires the rapid deployment of trained teams following the event to gather damage evidence, e.g., storm debris damage patterns, that can be used to accurately identify and describe the event. In cases of prolonged events, it may be appropriate to collect data during the event.

Information gained from PSDA enables the NWS to increase the knowledge of extreme events, learn how to better use existing equipment, and improve NWS warning programs. During long-duration events, such as flooding, data acquisition and overflights may be valuable to both document the event and to enhance ongoing forecast services.

For the purposes of this instruction, PSDA applies NWS activities that are a subset of the interagency PSDA effort coordinated by the Office of the Federal Coordinator for Meteorological Services and Supporting Research (OFCM). The level of detail, and the efforts and the processes described here, apply only to the NWS and its component offices.

2. Scope. The procedures outlined here apply only to NWS participation in the PSDA process, as described in the National PSDA Plan. These procedures apply in all 50 states, the Commonwealth of Puerto Rico, U.S. Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands. This section defines the role of the NWS and coordination procedures between the NWS and agencies participating in the acquisition of post-storm environmental data. This activity is one of many Federal missions undertaken in the overall response and recovery process that follows a significant hydrometeorological event. For example, the U.S. Geological Survey has primary responsibility for collecting post-storm hydrologic data (high water marks, discharge amounts, etc.).

3. Organizational Roles.

3.1 Office of Climate, Water, and Weather Services (OCWWS). When OCWWS is advised of a significant hydro or meteorological event, the OCWWS (NWS) representative to the OFCM's Working Group for Post-Storm Data Acquisition (WG/PSDA) coordinates with the affected region(s) and National Centers for Environmental Prediction (NCEP) Service Center(s) to determine if the NWS should field personnel as part of a PSDA Quick Response Team (QRT). The composition of the QRT will be determined by OCWWS in collaboration with the regions and NCEP.

Consideration for fielding a QRT includes:

- scientific interest,
- tornado or wind damage greater than F3,
- catastrophic damage,
- large number of deaths,
- profound coastal or inland flooding.

The NWS WG/PSDA representative then:

- informs the Assistant Administrator for Weather Services of the event;

- advises the WG/PSDA Chair the NWS will deploy personnel to the affected area and request the Chair to notify the other Federal OFCM representatives; and

- contacts the OFCM, in coordination with the WG/Cooperative Support and Backup (CSAB) Chair, to arrange for Civil Air Patrol (CAP) support, as required.

NWS funds activities according to procedures defined in the National PSDA Plan.

3.2 Regional Headquarters. Each region will ensure timely notification of significant hydrometeorological events to OCWWS and recommend whether damage surveys can be conducted by the local office, or whether this should be elevated to the national OFCM PSDA process. The region(s) coordinate with the impacted WFO(s) to ensure NWS personnel supporting the PSDA QRT are dispatched to the disaster area(s), maintain close contact with the

WFO, and assist in coordinating with local and state officials in gaining access to the disaster area(s).

3.3 Local Offices. Local offices initiate a "first review" of an extreme hydrometeorological event. In a "first review," the local Meteorologist in Charge (MIC) or their designated representative goes to the site, surveys the damage, and obtains overflight capabilities through contacts with state police, media, and other local resources. If they believe the situation is of national importance (e.g., a service assessment team may be fielded or the survey of the damage will have significant scientific interest), they should request their region to recommend the activation of an OFCM PSDA QRT. If emergency management personnel or media coverage indicate an extreme event (e.g., F4 or F5 tornado, catastrophic damage, or large number of deaths) the MIC should notify region about possible activation of a OFCM PSDA QRT even before completing a site survey.

3.4 National Service Centers. NCEP Service Centers (and the Central Pacific Hurricane Center through the Director, Pacific Region) may request NWS support for an OFCM PSDA QRT deployment through OCWWS.

3.5 River Forecast Centers (RFCs). RFCs may request an OFCM PSDA QRT through their regions. RFC requests typically focus on information about the current status of ongoing flooding, such as areas inundated and locations of levee failures, as well as on the significance of the event to their respective program.

3.6 Office of the Federal Coordinator for Meteorological Services and Supporting Research. The OFCM maintains the National PSDA Plan and the Memorandum of Understanding (MOU) with the CAP. The OFCM also coordinates interagency PSDA efforts and processes CAP mission support requests submitted by the WG/CSAB Chair or the NWS representative to the WG/PSDA. If the CAP is not available, OCWWS will secure NOAA or private sector air support.

3.7 Civil Air Patrol. Upon request, CAP provides mission support on a reimbursable basis. Even for events not funded nationally, local offices/regions may request CAP mission support. The cost may be considerably lower than using commercial services.

4. Deployment. The local MIC or designee should initiate post-storm data collection within 12 hours of the event. If applicable, request CAP support as soon as possible. For a QRT, the NWS representative to the WG/PSDA will work with the affected regional office, local offices, the OFCM and the Chair of the OFCM WG/PSDA to ensure the PSDA QRT reports to the area as soon as practicable following the event.

5. Reporting and Documentation Process. Personnel representing the NWS portion of the OFCM PSDA QRT should create a report and analysis map as soon as possible after data collection to satisfy NWS requirements, and to provide input to service assessment reports. A preliminary report and mapped analysis is due to the NWS representative of the WG/PSDA two

weeks following the completion of the data/information collection. The final report, graphics, and mapped analyses should be completed within 60 days of the original deployment.

5.1 NWS Report Content Outline. Each report should include the following, as appropriate:

- event description and its impact;
- event analysis; and
- description of phenomena, such as:
  - tornadoes, to include path length, path width and F-scale, as required;
  - hurricanes, to include the Saffir-Simpson scale, first and second wind speed and direction, and of maximum winds, as required;
  - storm surge indicating the maximum surge height, and inundation areas; and
  - reaches of rivers affected, high water marks, levee failures.

5.2 Mapped Analysis. Each analysis should graphically include, as appropriate:

- tornadoes, to include path length, path width, and F-scale, as required;
- hurricanes, first and second wind speed and direction, and isopleths of maximum winds, as required;
- storm surge indicating the maximum surge height, and inundation areas, and high water marks, as required; and
- depiction of river reaches and areas of inundation.

6. Report Distribution. At the service assessment team leader's discretion, the PSDA report may be attached to or integrated into the service assessment report. All reports will be posted on the OCWWS Web site at: http://www.nws.noaa.gov/om/data/stormdata.html.

The NWS WG/PSDA representative will e-mail appropriate interests to notify them of the report's availability.

7. Determining Tornado F-scale. After a tornado, there is considerable public and media interest in an assessment of the tornado's intensity including maximum wind speeds. WFOs, service assessment teams, and QRTs must exercise caution in assigning intensity ratings until all information is received and analyzed. This is especially true when damage is extreme or a high number of casualties has occurred. To ensure the highest level of accuracy in the final F-scale rating, the following process should be followed.

If a WFO observes tornado damage potentially greater than F3 or is notified of extreme damage, the WFO will request a QRT through their regional headquarters. Until a final F-scale is determined, all references to the event will be characterized as "**potentially greater than F3**."

OCWWS will maintain an active list of recognized F-scale experts around the country willing to support a QRT.

Where no NWS service assessment or PSDA QRT is deployed, the WFO serving the affected area determines the F-scale.

If a PSDA QRT is deployed, the WFO and QRT members will review all information and strive to reach a consensus decision on F-scale rating. If a consensus is not possible, the WFO's assessment will prevail.

If an NWS service assessment team is deployed, the team in conjunction with the WFO and the QRT will strive to reach a consensus on the F-scale rating. If an agreement is not reached, the F-scale is determined by the two of the three parties in agreement.

Once a final F-scale determination is made, all personnel will adhere to the rating.

Detailed information on F-scale assessment, and differentiation between tornado and straight-line wind damage, is found in NOAA Technical Memorandum NWS SR-146 titled "A Guide For Conducting Convective Windstorm Surveys."

7.1 Training in F-scale Determination. The regions should conduct yearly refresher training on F-scale wind determination. Relevant parts of the Warning Coordination Meteorologist training course at the Training Center should be conducted by a wind engineer or someone recognized as an expert on F-scale wind determination.

APPENDIX A - Glossary of Terms

Significant Hydrometeorological Events - Significant hydrometeorological events are those that directly result in at least one fatality, numerous injuries requiring hospitalization, extensive property damage, or widespread media interest. However, heat episodes with fewer than 5 fatalities and multiple lightning fatalities fewer than 3 are not considered significant hydrometeorological events.

Significant NWS-related Events - NWS-related significant events include, but are not limited to, situations where there are one or more employee fatalities or injuries occurring in the line of duty; major damage to an NWS facility; civil disturbances affecting NWS employees or installations; results of terrorist acts requiring provision of weather services; toxic spills or nuclear incidents requiring the provision of hydrometeorological services; wild fires, tsunamis, avalanches, and volcanic eruptions, requiring the provision of services from the NWS; and weather-related marine and aviation accidents as defined in Directive 10-20, Forensic Services.